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ABSTRACT

Researchers investigating study strategies have observed that the textbooks themselves often contribute to students' comprehension and learning difficulties. Teachers, by being aware of qualities of inconsiderate texts, can identify poorly written texts, can prepare students for difficulties in upcoming sections of the text, and can instruct students in ways to deal with difficult texts. Teachers can use the following four factors when evaluating texts: (1) structure--the arrangement of ideas and the relationships connecting them; (2) coherence-- the smoothness or logic with which ideas are woven together, the "flow of meaning"; (3) unity--the degree to which the text addresses a single topic; and (4) audience appropriateness--the extent to which the text matches the reader's knowledge and interest. Two other factors that may be useful in evaluating textbooks are elaboration and style. Elaboration is the sufficiency of information provided and the method used to expand on the main ideas presented in the text. Style includes how exciting the textbook looks and sounds (tone), particularly for its intended age group. (Good and poor examples illustrating these six characteristics, as well as evaluation guidelines and student strategies are included.) (HTH)

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IDENTIFYING THE FEATURES THAT MAKE EXPOSITORY TEXTS MORE COMPREHENSIBLE

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INTRODUCTION

A primary purpose of textbooks is to provide information. While the authors of these textbooks have many other purposes such as to persuade or entertain, the primary purpose is still to inform the student about specific information. Anderson and Armbruster (1984), when investigating studying strategies that students use to help them learn from texts, noticed that the textbooks themselves seemed to be contributing to students' comprehension and learning difficulties. From their subsequent

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investigation of current textbooks, they have identified aspects of texts that can pose learning difficulties.

Concentrating on expository texts written for intermediate grade students, Slater (in press) attempted to revise text to make it more comprehensible. He worked from the assumptions that (a) much of the expository textbook prose written for elementary school students is inconsiderate; and (b) that any attempt to revise such texts by focusing on one or two discrete text features would probably not significantly improve students' comprehension. Slater thus revised fifth grade social studies texts according to four factors: coherence, unity, structure, and elaboration. Fifty-six fifth grade students participated in his study. They read a total of four passages (an original and revised version of each of two passages), wrote recall protocols of the passages, and took two twenty-item multiple-choice tests. These revisions proved successful in improving comprehension as students recalled 29% of the revised passages as opposed to 18% of the original passages, and students scored 72% on the multiple-choice tests after reading the revised passages as opposed to scoring 63% after reading the original passages. Clearly, this study demonstrates that by revising texts according to dimensions of structure, coherence, unity, and elaboration, one can significantly increase students' comprehension of the texts.

But to the teacher who meets up to two hundred students per day and corrects just as many or more papers per week,

advice to revise texts to the extent that Slater did is unrealistic. Therefore, what guidelines from this line of research can feasibly be followed by the classroom teacher? We believe that teachers, by being aware of qualities of inconsiderate texts, can identify poorly written texts and thus avoid them, can troubleshoot or prepare students for difficulties in upcoming sections of a text, and can instruct students in ways to deal with such difficult text.

Therefore, the first thing teachers must be able to do is to identify inconsiderate or poorly written texts. Anderson and Armbruster (1984) have listed four factors which can be used when evaluating texts. The following are these factors followed by definitions, guidelines, and examples. These are intended to aid teachers in identifying both poor and good quality texts, and in providing strategies which students might follow when using expository texts. In the following discussion we rely heavily on Anderson and Armbruster's definitions and examples of these factors.

FACTORS INFLUENCING TEXT COMPREHENSION

STRUCTURE

Definition: The arrangement of ideas and the relationships connecting them.

Guidelines:

(1) The author's topic, purpose or question, and structure should be readily apparent to the reader from titles, and/or topic sentences.

Poor example --

The Pilgrims Decide to go to America

Finally the Pilgrim leaders said, "Why don't we go to America? Part of America is claimed by England. There we shall be able to educate our children in Enlgish ways. And we shall be able to worship in our own way."

The Pilgrims began to make plans. How could they get to America? They were hardworking and thrifty people, but they were not rich. They could not afford to buy supplies and hire a ship and crew.

Good example --

Vision Explained

Light rays coming from an object pass through the cornea, enter the pupil, and reach the lens. The lens bends the light rays, which then form an imaage on the retina. This image is formed in the same way

> that a camera lens forms an image on film. The image on the retina produces impulses that reach the brain by way of the optic nerve. When the impulse arrives at the special area of the cerebrum that controls vision, we become aware that we see something.

Strategies to help students with structure:

(1) If a title, heading, or subheading is a mismatch with the content, teachers can suggest that students read for the purpose of rewriting the title, heading, or subheading, or read to see if it is a good one for the section.

(2) A good many structural problems can be overcome by teaching students to develop their own structure for a text, primarily through summarizing. Taylor (1984) has used a hierarchical summarization strategy that students were able to learn after several weeks of training. Here, we will simply list the steps involved in the summarization task and leave out the description of the training.

First, students made a skeletal outline of the text with a numbered space for a main idea statement for each section that had a subheading and two lines at the top of the page for a thesis statement. Next, students read each section of the text and wrote a main idea statement in their own words for the section. Beneath the main idea statement, they also wrote two or three important supporting details. They then thought of topic headings that connected sections that were on the same

topic together, wrote these in the left margin, and drew lines from the topic headings to the sections they went with. Finally, they generated a key idea or thesis statement for the entire passage that they wrote at the top of the page.

COHERENCE

Definition: How smoothly the ideas are woven together; there should be a logical connection or "flow of meaning."

Guideline:

(1) Relationships among ideas should be explicit.

Poor example -- Many of the connectives indicating relationships are missing and left to be inferred.

> In the evening, the light fades. Photosynthesis slows down. The amount of carbon dioxide in the air space builds up again. This buildup of carbon dioxide makes the guard cells relax. The openings are closed.

Good example -- An attempt to improve the coherence of the text by making the relationships more explicit.

> What happens to these processes? The fading light of evening causes photosynthesis to slow down. Respiration, however, does not depend on light and thus continues to produce carbon dioxide. The carbon dioxide in the air spaces builds up again, which makes the guard cells relax. The relaxing of the guard cells closes the leaf openings. Consequently,

the leaf openings close in the evening as photosynthesis slows down.

Guidelines:

(2) References should be clear.

(3) The order of events should proceed in only one direction.

Poor example -- In this, the author has tried to work with the problem of describing a repetitive cycle consisting of a night phase and a day phase. While the author here goes back and forth between the day and the night phases, it would have been more considerate if the author had first described all the events pertinent to the night phase followed by all the events pertinent to the day phase and a comment that the cycle is repeated.

> Photosynthesis in the leaves starts with the morning sunlight. Carbon dioxide was made during respiration all night. It was stored in the air spaces around the spongy cells. This carbon dioxide is used as the leaf starts to make sugar. When a certain amount has been used up, the guard cells respond. They become stiff, swell out, and make openings in the leaf. They stay open all day.
>
> In the evening, the light fades. Photosynthesis slows down. But respiration goes on. The amount of carbon dioxide in the air spaces builds up again.

This buildup of carbon dioxide makes the guard cells relax. The openings are closed.

Strategies to help students with Coherence:

(1) The primary means of coping with texts with poor coherence is to help your students become aware of their comprehension. Teach students to focus on whether they are understanding the text. One way to do this is to have them ask themselves questions such as, "What is this paragraph about?" or "What is the author trying to tell me?" and "Can I summarize this with a main idea statement?" If your students have not understood a paragraph, have them attempt to determine the source of the confusion. Then, they can go back and reread that part. If that is unsuccessful, they can ask someone else (like a teacher or parent) what the paragraph means.

(2) If there is a particularly confusing section that you have spotted ahead of time, point this section out to your students before they start reading and go through it together. Point out why you found it confusing, and then together with your students, attempt to clarify the meaning. For example, if you are reading a section in which the order of events is confused, as in the photosynthesis paragraphs, use the board to write out the events or steps. Then put them in order with the help of your students. This sort of exercise is useful both in showing students how to handle confusing texts and in letting

them know that everyone has difficulties in reading sometimes. It may be the fault of the author rather than the reader!

UNITY

Definition: The degree to which the text addresses a single topic.

Guidelines:

(1) Each idea in the text should contribute directly to the development of the topic.

(2) Entire text units that are only slightly related to the main flow of the text should be set aside or placed in boxed-in areas or appendices.

Poor example -- In the following paragraph the last three sentences do not clearly contribute to the author's purpose. While the use of parentheses helps somewhat, the last three sentences could be removed from the text or relegated to a box.

> The Indians grew tobacco which they smoked in pipes. Smoking was probably brought to England in the late 1500's. It quickly became popular. Historians are not sure who brought tobacco to England. Some think it was Sir Walter Raleigh. (He named Virginia in honor of Queen Elizabeth, "the Virgin Queen.")

Strategies to help students with Unity:

(1) Once again, we come back to the idea of having your students focus on summarizing the main ideas in a text. They

can either use the more formal procedure we described earlier, or if they are already familiar with summarizing, they can ask themselves questions such as, "What is the most important point that the author wants me to know about this topic or subtopic?" This forces students to focus on the important information and not get distracted by irrelevant information. As suggested earlier, it is useful to show your students how to go about asking questions. Use a paragraph such as the tobacco one above and have your students generate a main idea statement for it. Then look at each sentence and decide whether it supports the main idea or whether it does not belong in the paragraph. Make students aware that authors do not write perfect texts. Sometimes the reason they are confused may be due to the author's writing instead of their reading.

AUDIENCE APPROPRIATENESS

Definition: The extent to which the text matches the reader's knowledge base and interest.

Guidelines:

(1) The text should contain enough information so that the reader is able to form a complete answer to the question implied by the title.

Poor example -- The following is an example of a text in which there is not enough information included in the text to enable a reader to form a complete answer to the question implied by the title.

How Blood is Transported Through the Body

The numerous arteries that branch off the aorta carry blood to various organs and systems. Then veins return the blood to the heart. Among these pathways are those to the digestive organs, the limbs, the head, the kidneys, and the walls of the heart.

Good example -- This paragraph gives a fuller explanation of the process.

Blood is transported by the circulatory system, which is composed of a network of tubes (arteries, veins, and capillaries), a pump (the heart), and a fluid (blood) which moves. The heart pumps the blood by a series of contractions and expansions from its chambers into the arteries. Arteries take blood to all organs of the body (brain, muscles, kidney, etc.) except the lungs. Blood enters an organ from the artery through capillaries or tiny tubes. Blood also exits the organ through capillaries whiach are connected to veins. Veins then conduct the blood back to the heart.

(2) When technical terms or difficult vocabulary words are included in a text, clear definitions should be provided.

Poor example -- In this example, the technical term "responds to stimuli" is not defined and probably would not be understood by the young reader.

What is a Cell Like?

A cell is made of living stuff. It takes in food and changes the food into more living stuff. A cell combines food and oxygen to make energy for all the things it does. The living stuff in a cell responds to stimuli. It moves.

Strategies to help students with Audience Appropriateness:

(1) If your students' lack of prior knowledge about a topic is a serious problem, have them read a supplementary text first to build background knowledge. Another way to build background knowledge is to present a preview of the text just before students read it. Graves, Prenn, and Cooke (1985) describe how to construct a preview. A preview is an oral presentation that consists of an interest building section that connects the students' world to the text topic, a background knowledge section that presents information necessary to understand the text, a section that contains a summary of the contents of the passage, and a direction for reading.

(2) If the text you are using has failed to explain difficult vocabulary or technical terms, it may be useful to preteach these words. Eight to ten words that are related could be taught using semantic mapping. In semantic mapping, students connect the meanings of new words with other concepts so that they are presented with a picture of how these terms fit together. For individual concepts that may be especially

difficult to learn, the Frayer model provides a way to prepare students for reading. The steps of the model include: giving a definition and example, defining the important attributes, giving a nonexample of a concept the word is likely to be confused with, and relating the concept to superordinate, coordinate, and subordinate terms (McNeil, 1984).

Two further factors to watch for in texts which we would like to briefly note are: (a) elaboration, and (2) style, intrinsic interest, and verve. We would define elaboration as the sufficiency of information provided and the amount that the author expands on the main ideas presented in the text. When evaluating text note whether the important or the unimportant points are elaborated and whether the questions at the end of the chapters focus on the main ideas or details. We would define style, intrinsic interest, and verve, as how exciting the text looks and sounds (tone), especially how interesting it looks and sounds for the age level for which it is intended.

The following is an example taken from Duin and Furniss (1985) where they revised a high school social studies text in order to both elaborate on main points in the passage and to make the passage more exciting (i.e., definitely less boring) for high school students.

Poor example -- The following is the beginning of a passage from a high school history text titled A History of the United States (Wade, Wilder, & Wade, 1972). The majority of the entire passage deals with the Cold War and the Korean conflict.

The Cold War Continues Under President Eisenhower

> The frustrations of the Korean War and the Communist conquest of China played a major role in the election of 1952 (page 790). The American people elected the first Republican President in 20 years. But the change of power in Washington brought no letup in the tensions of the cold war. President Eisenhower and his Secretary of State, John Foster Dulles, met head-on the challenges of continued Communist aggression, as crises developed in the Far and Middle East, Europe, and Latin America. Meanwhile, new developments in nuclear warfare and the beginning of the "space race" also heightened world tension.

Good example -- The following is Duin and Furniss' revision of the beginning of this passage. They specifically tried to provide needed background information, and to use the introduction of the passage as a place where students' attention and intrinsic interest should be caught and kept.

KOREA: THE COLD WAR GETS HOT

For many reasons the Korean War, which began in 1950 and ended with a truce in 1953, is one of the most important events of the 20th century. It influenced the position of the United States in relation to all other nations, yet, paradoxically, most Americans never think of its importance.

The fighting started after years of tension between the U.S. and communist nations. This tension, known as the Cold War, began after World War II. The U.S. and its allies had watched fearfully as communists grasped territory in Asia, including North Korea. Soon after, North Korean communists invaded South Korea. This was the last straw; the U.S. sent American soldiers into Korea to stop them!

One more example simply of what we would describe as "good" style is the following ercerpt from New York Times Magazine, October 6, 1985, written by Michael Korda.

The Improbability of Kilimanjaro

Some mountains inspire fear. The Himalayas, even the Swiss Alps, are sharp, craggy, knife-edged. Seen from a distance they are threatening; seen close, usually after many tedious hours of climbing the foothills, they are at once terrifying and too

> big to contemplate -- glaciers, rock faces, snowfields stretching as far as the eye can see, as if the Creator had formed them roughly, in haste or anger: chaos in stone.
>
> Kilimanjaro, however, is a soothing presence, so gently shaped that it looks as if you could climb to its top without losing breath, startling since it rises out of a broad, flat, dusty plain in Tanzania, a land where the fierce noonday heat makes the sight of snow seem like a fantasy.

CONCLUSION

If all textbooks were written with these factors in mind, teachers could work with textbooks rather than around them; teachers could use class time supplementing the textbook rather than translating or interpreting it for the students. Unfortunately, since textbooks often fail to demonstrate clear structure, coherence, unity, and audience awareness, teachers need strategies to deal with these texts and guidelines which they can pass onto their students. By presenting these factors, definitions, guidelines, good and poor examples, and strategies, we hope to have given the classroom teacher a clearer picture of how to identify and deal with inconsiderate expository texts.

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